

In 2021 we plan to formulate augmented emergency control algorithms that utilize partial information about system state and parameters (as obtained through system estimation and PMU measurements) to reduce uncertainty and conservativeness. We propose to design non-linear emergency control methods with the incorporation of equipment and grid dynamics, using data-driven Kernel and Koopman operators. To support our theoretical investigations, we plan to develop a stable and scalable GridDyn test environment with verifiable performance of linear emergency control policies and measurement collection. In 2022 we will integrate algorithms developed earlier with GridDyn. And will use simulations and data collection to identify possible improvements/augment control policies designed earlier.